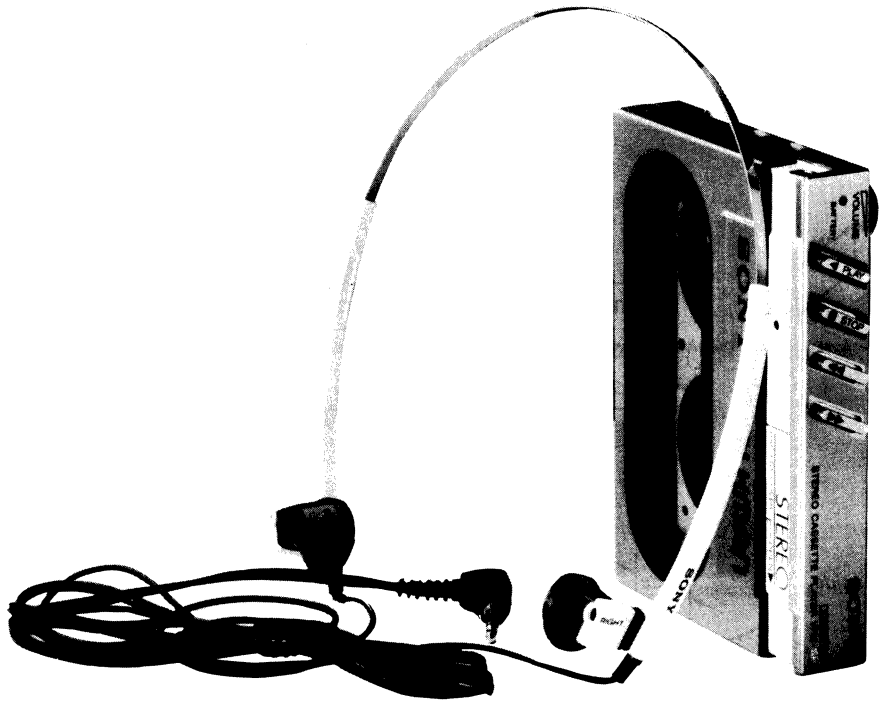
WM-20

SERVICE MANUAL

Refer to MDR-W30L Service Manual issued previously for information of headphones supplied with this set.

AEP Model
UK Model
E Model



SPECIFICATIONS

Tape track: 4-track 2-channel stereo
Fast winding time: Approx. 2 min. with Sony cassette C-60
Frequency response (DOLBY NR OFF)
40–15,000 Hz (with the TAPE selector set to $\frac{CrO_2}{METAL}$)
40–15,000 Hz (with the TAPE selector set to NORM)
Power output: 5 mW × 2 (max.)
5 mW × 2 (at 10% harmonic distortion) at dc operation
Power requirements: 1.5 V dc
Size AA battery (IEC designation R6)
External batteries (used in the optional battery case EBP-10): size AA (IEC designation R6) × 2
DC IN 1.5 V jack accepts: Sony AC-D1 ac power adaptor (optional)
for use on 120 V ac or Sony DCC-70 car battery cord (optional)
for use with 12 V car battery.
Battery life (continuous playback hours):
Approx. 2.5 hours with supplied Sony SUM-3 (NS) New Super battery
Approx. 5 hours with Sony Eveready AM3 alkaline battery
For maximum performance we recommend the use of alkaline battery.
Dimensions: Approx. 69.5 × 109.5 × 17.6 mm (w/h/d)
($2^{3}/_{4} \times 4^{3}/_{8} \times {}^{23}/_{32}$ inches)
not incl. projecting parts and controls
Weight: Approx. 180 g (6.4 oz) incl. battery, not incl. other accessories

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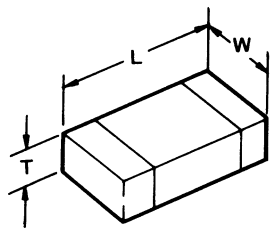
STEREO CASSETTE PLAYER

SONY®

MICROFILM

- **Chip components**

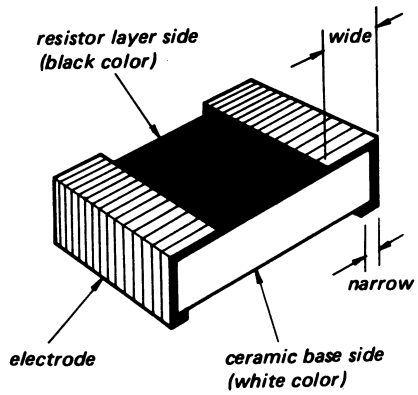
Chip components include resistors, capacitors, transistors, diodes, coil and adjustable resistors.
In this section, the types of resistors, ceramic capacitors, transistors and diodes which are used most frequently will be described.
Dimension of transistors and capacitors



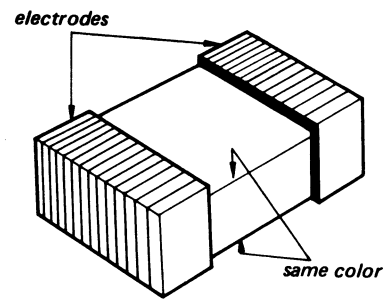
(Unit: mm)

Type	L	W	T
3216	3.2	1.6	0.45 ~ 0.6
2125	2.0	1.25	0.35 ~ 0.5

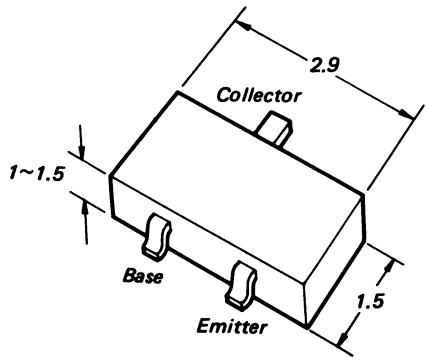
Identification



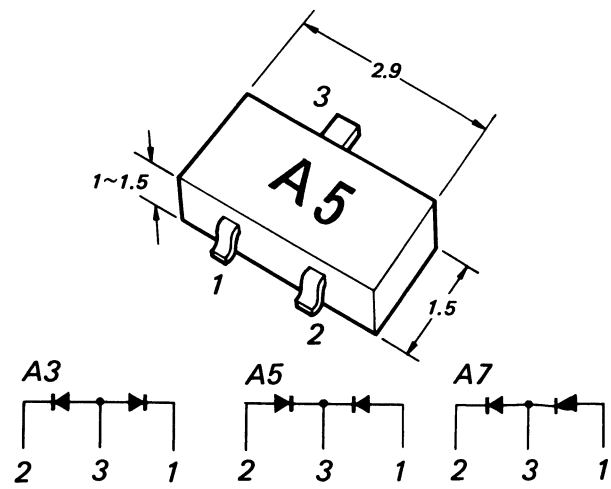
Resistor



Laminated Ceramic Capacitor



Transistor



Diode

Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

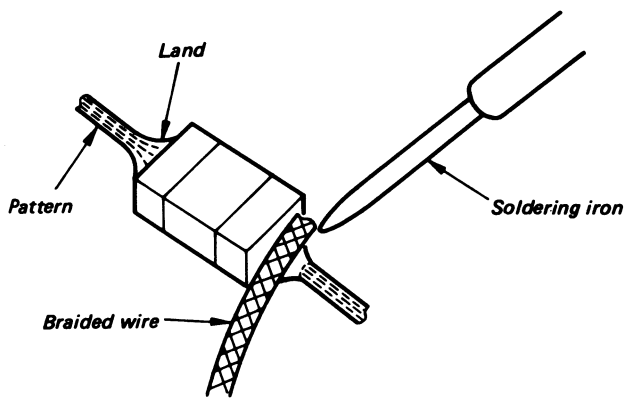
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ **Removing chip components**

(1) Removing solder at electrode

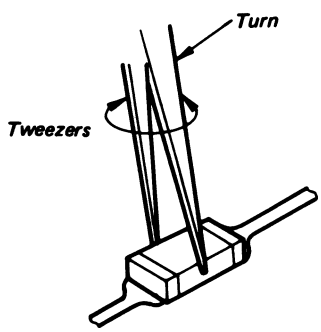
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.

Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

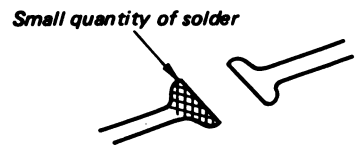
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ **Connecting chip components**

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

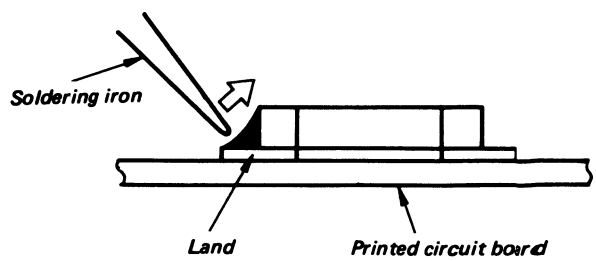
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

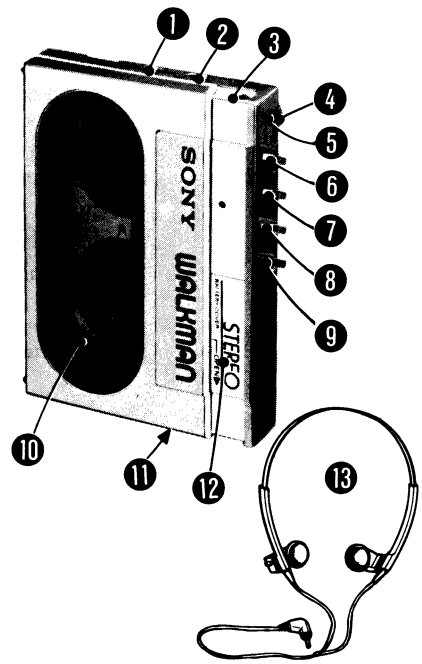
Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

PARTS IDENTIFICATION

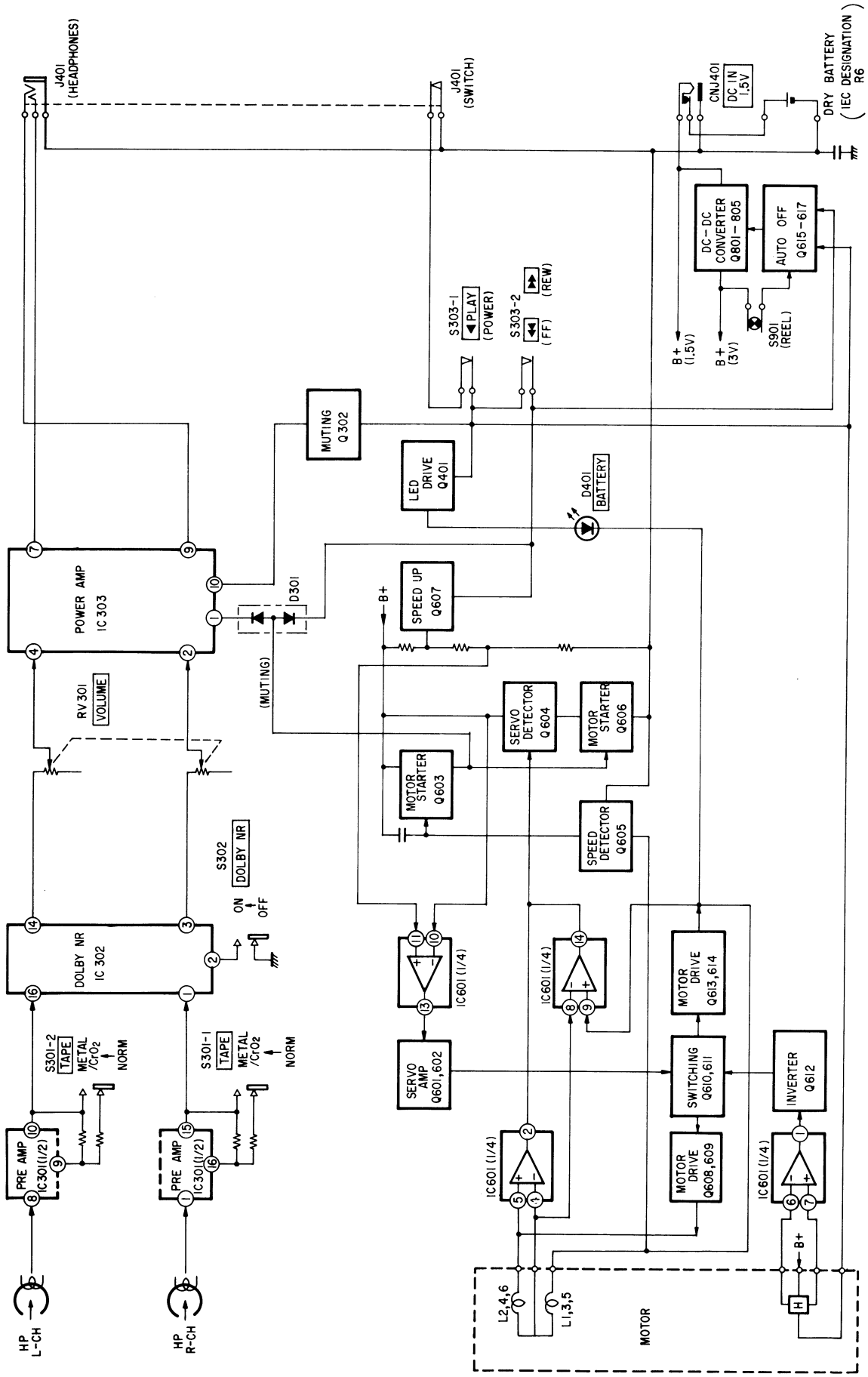


❶ TAPE selector ❷ DOLBY NR switch ❸ Headphones jack
❹ VOLUME control ❺ Battery indicator ❻ ◀ PLAY button
❼ ■ STOP button ❽ ◀◀ button ❾ ▶▶ button
❿ Cassette holder ⓫ DC IN 1.5 V (external power input) jack
⓬ Battery compartment ⓭ Stereo headphones (supplied)

MEMO

SECTION 1
OUTLINE

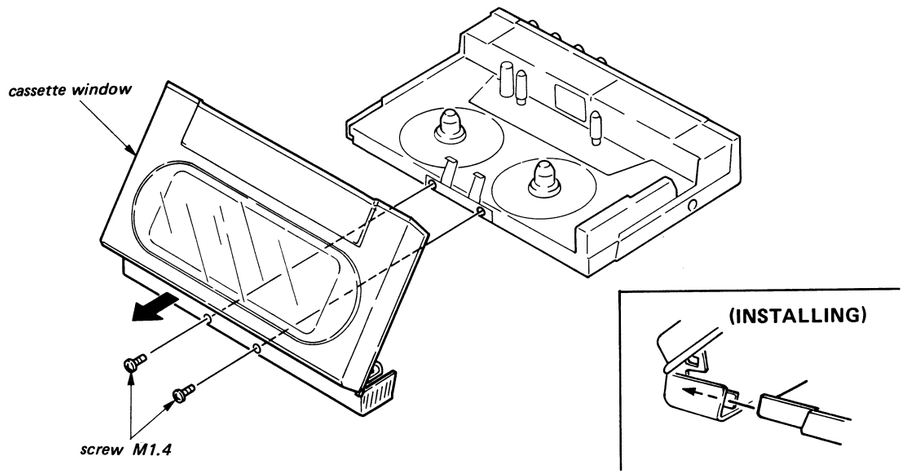
1-1. BLOCK DIAGRAM



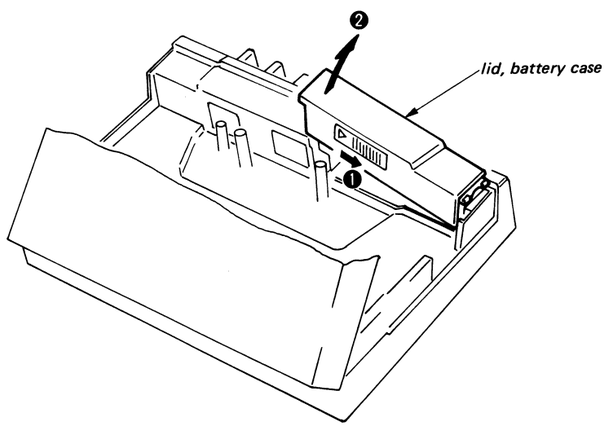
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

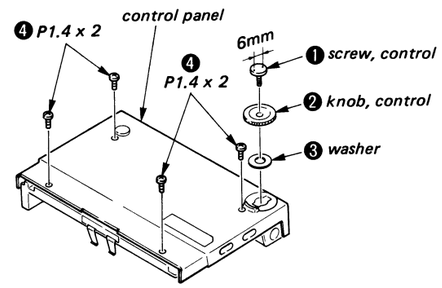
CASSETTE WINDOW

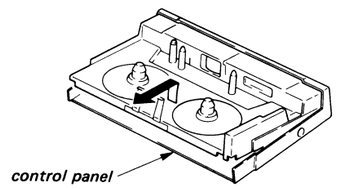


LID, BATTERY CASE

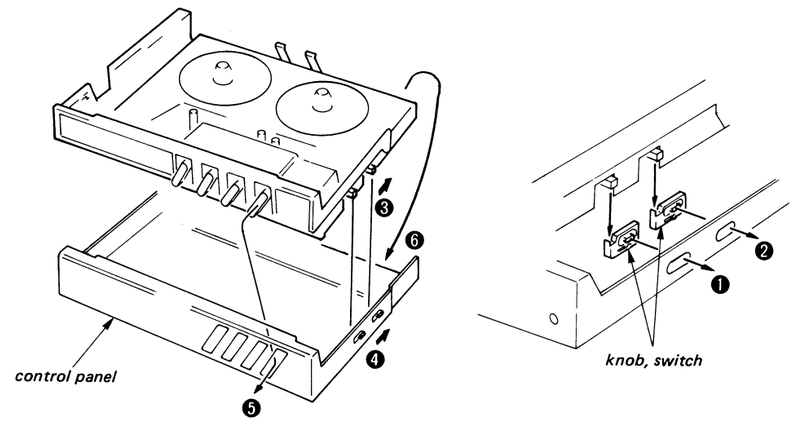


CONTROL PANEL



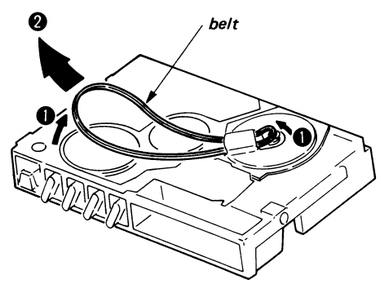


(ASSEMBLING)

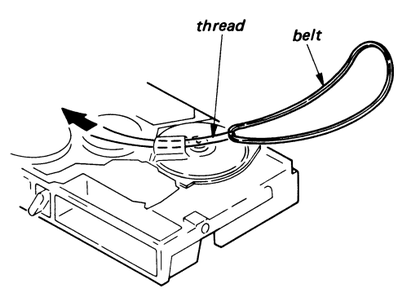


BELT

(REMOVING)

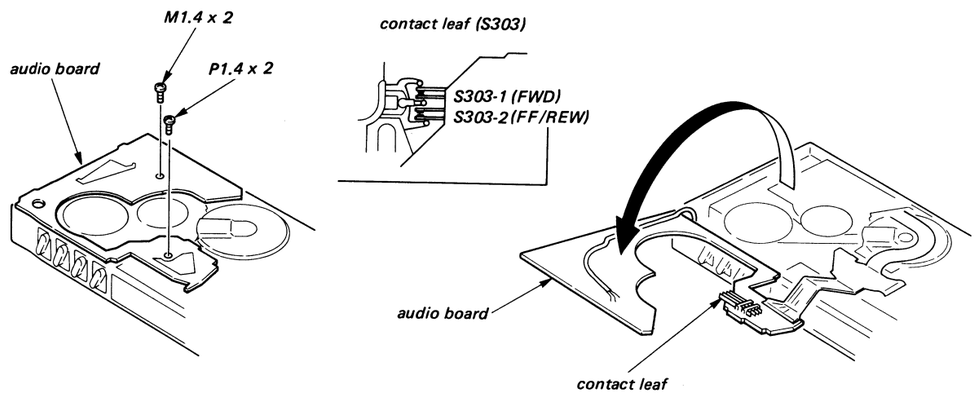


(INSTALLING)

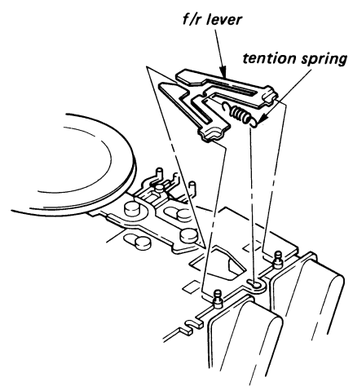


to P. 13 MOTOR BLOCK

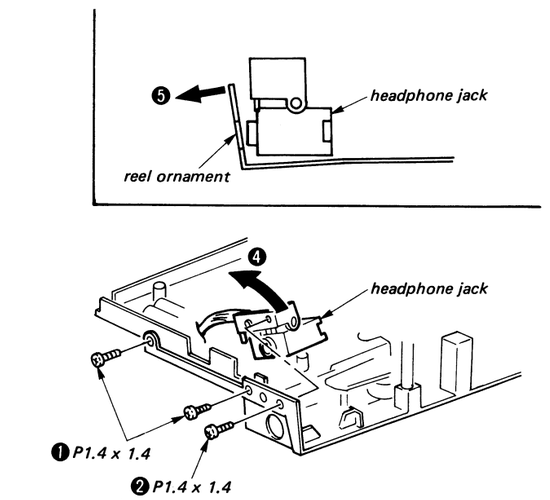
AUDIO BOARD



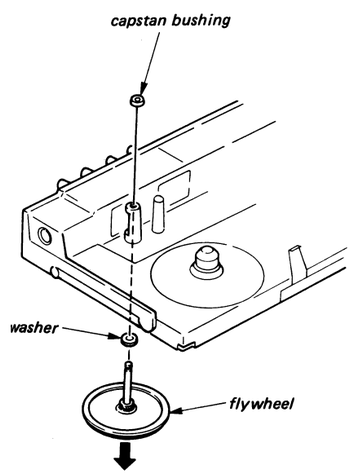
F/R LEVER



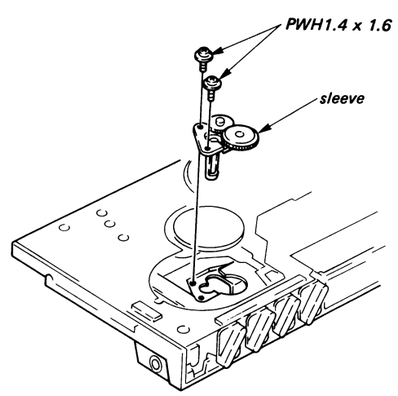
HEADPHONE JACK



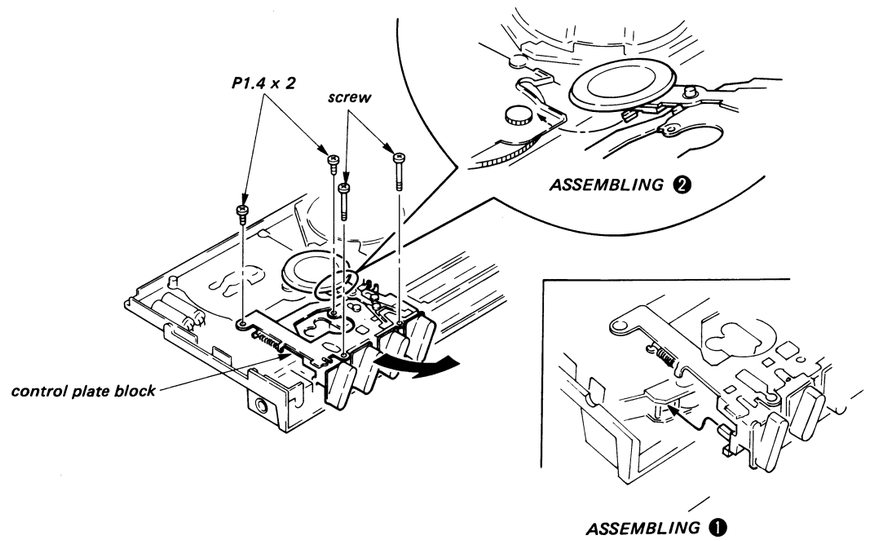
FLYWHEEL



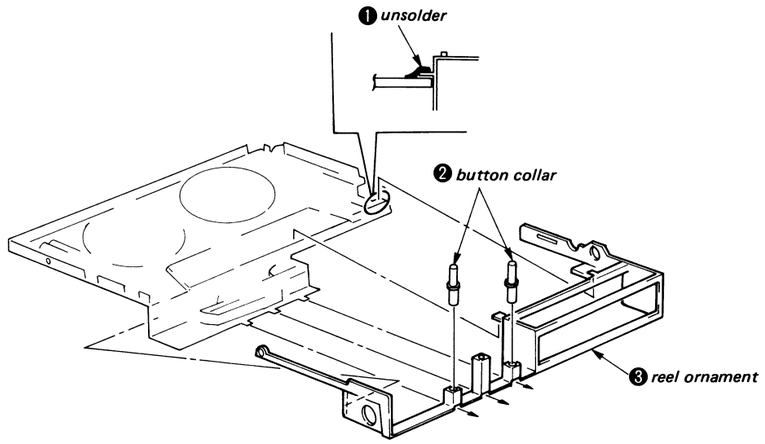
SLEEVE



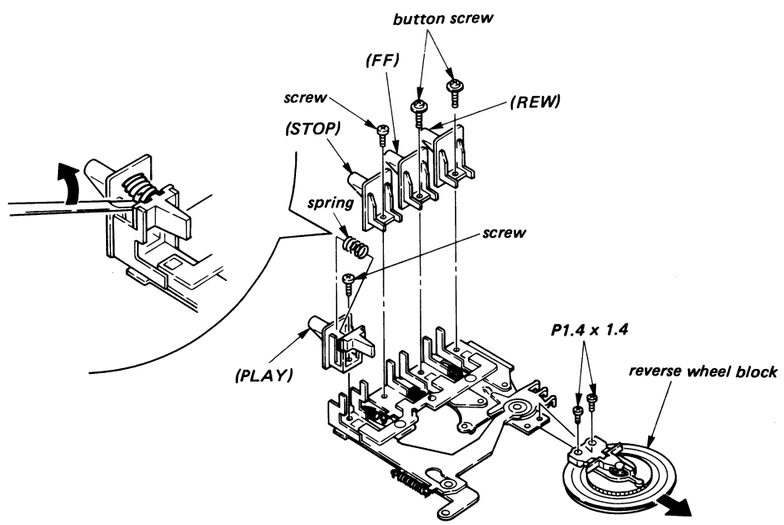
CONTROL PLATE BLOCK



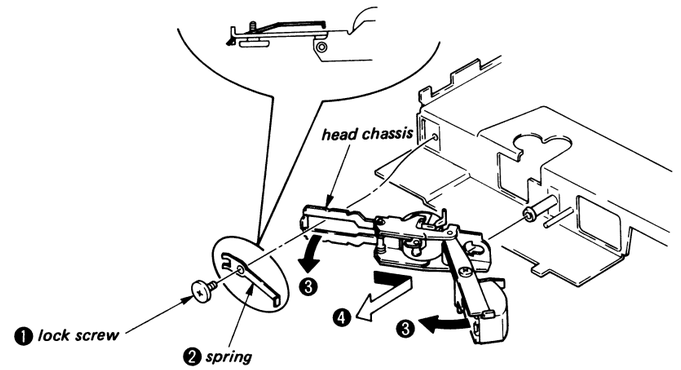
REEL ORNAMENT



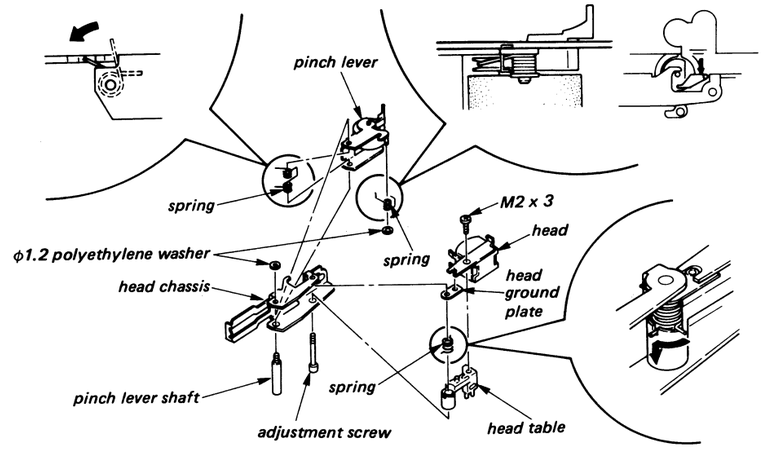
BUTTON (PLAY, STOP, FF, REW), REVERSE WHEEL BLOCK



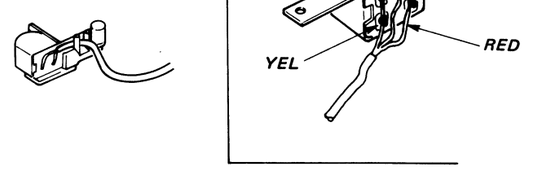
HEAD CHASSIS



(ASSEMBLING)

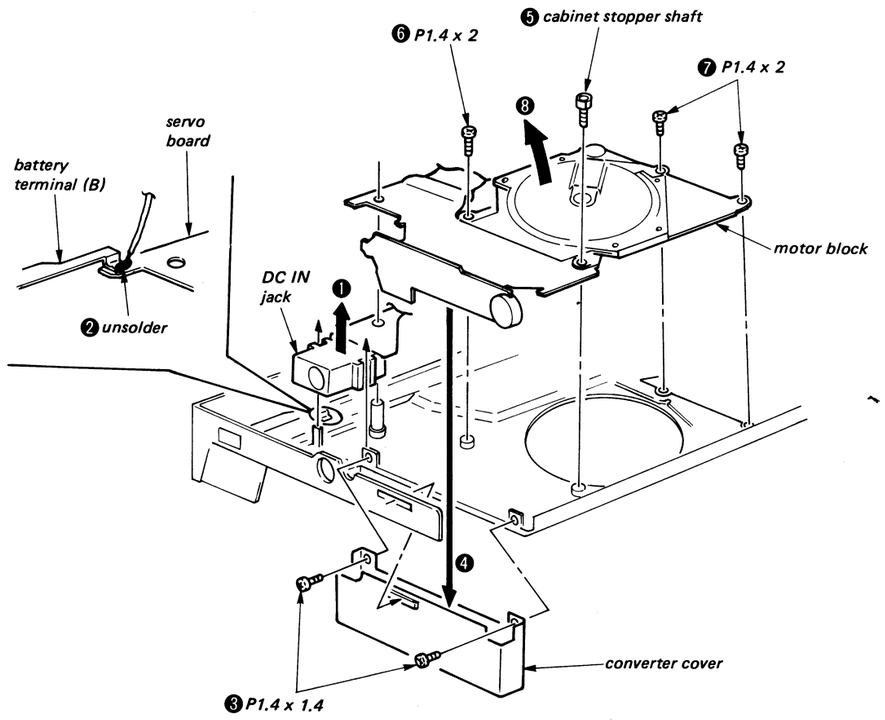


(HEAD WIRING)

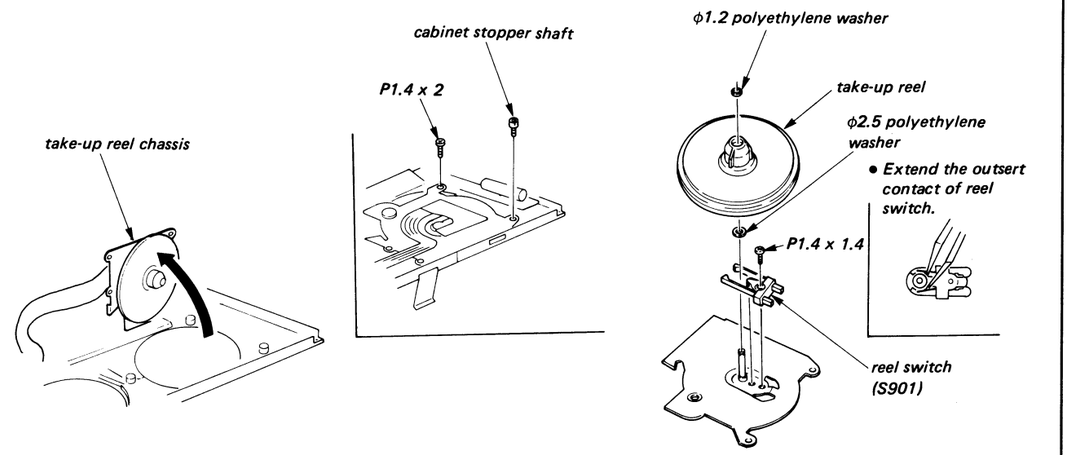


from AUDIO BOARD

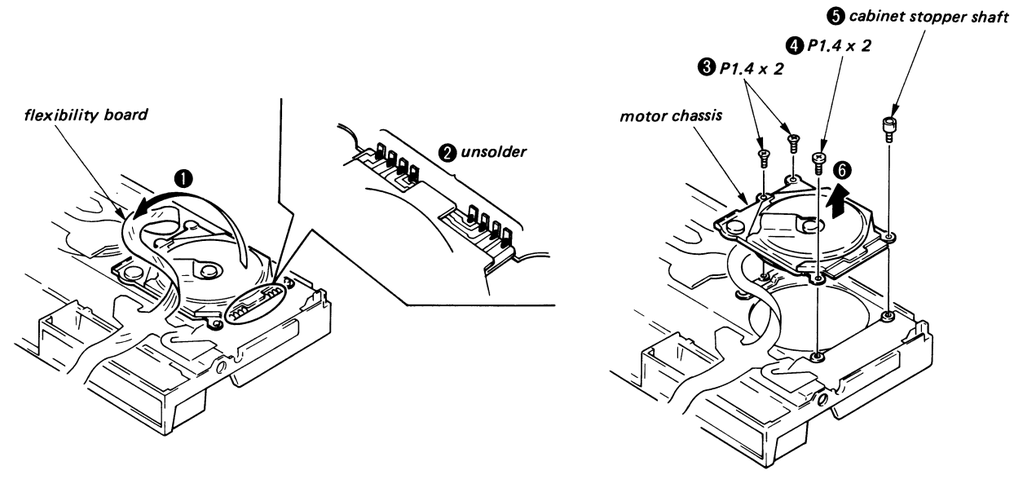
MOTOR BLOCK



TAKE-UP REEL



MOTOR CHASSIS



SECTION 3
ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

   playback head — pinch roller
   capstan — rubber belts

2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (1.3V) unless otherwise noted.

3-1. MECHANICAL ADJUSTMENTS

Torque Measurement

	Torque meter	Meter reading
FWD	CQ-102B	20 – 40 g·cm (0.28 – 0.56 oz·inch)
FF, REW	CQ-201B	More than 60 g·cm (More than 0.83 oz·inch)
Back Tension	CQ-102B	0 – 2.5 g·cm (0 – 0.03 oz·inch)
Tape Pulling Force	CQ-403	More than 45 g·cm (More than 0.62 oz·inch)

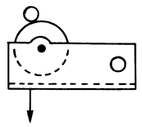
Pinch Roller Pressure Measurement

– Forward Mode –

1. Pull the spring scale in the direction shown by the arrow.
2. Slowly return the pinch roller and read the spring scale.

Specification:

150 ± 20 g (4.6 – 6.0 oz)



Thrust Clearance Adjustment

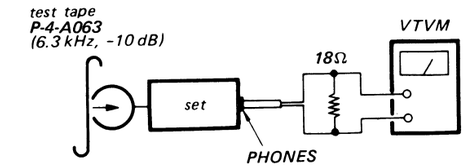
	Thrust clearance
Take-up reel	0.05 – 0.15mm
Supply reel	0.05 – 0.15mm
Reverse wheel	0.05 – 0.15mm

3-2. ELECTRICAL ADJUSTMENT

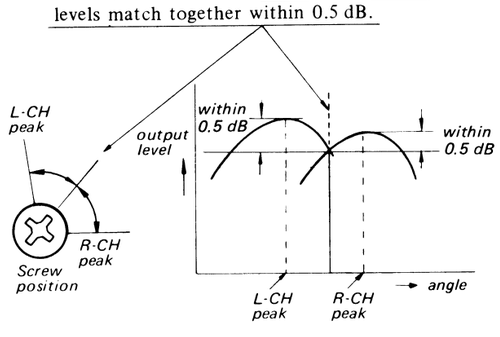
Playback Head Azimuth Adjustment

Procedure:

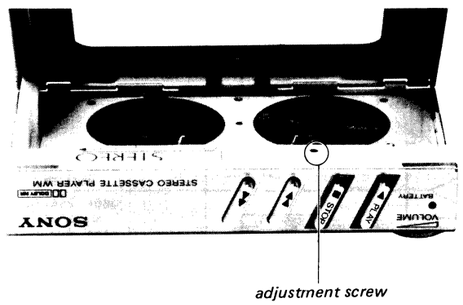
1. Mode: playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.



Adjustment Location:



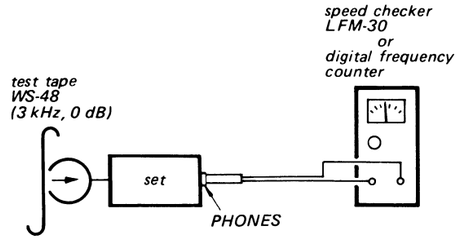
Tape Speed Adjustment

Setting:

VOLUME control: mechanical mid

Procedure:

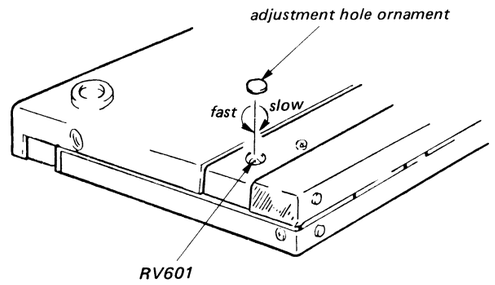
Mode: playback

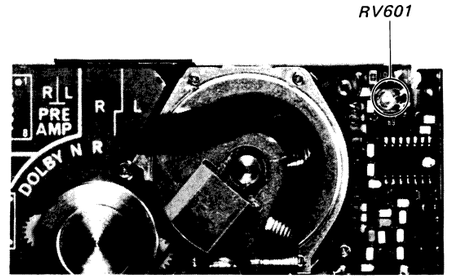


Specification:

Speed checker	Digital frequency counter
± 2%	2,940 – 3,060 Hz

Adjustment Location:



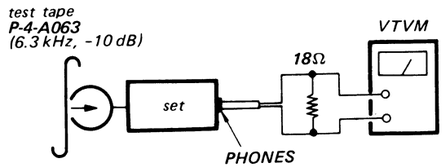


3-2. ELECTRICAL ADJUSTMENT

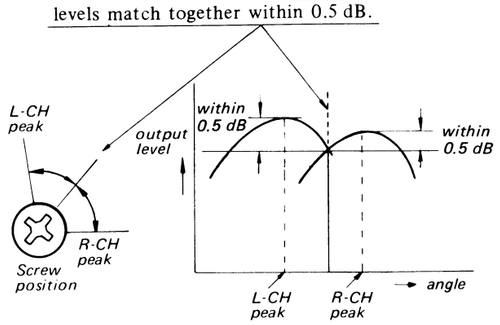
Playback Head Azimuth Adjustment

Procedure:

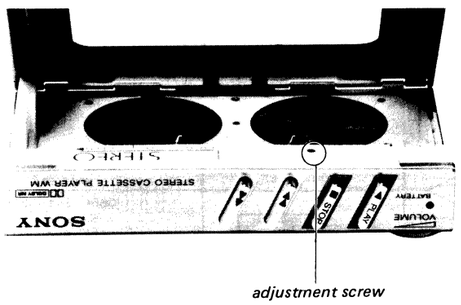
1. Mode: playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.



Adjustment Location:



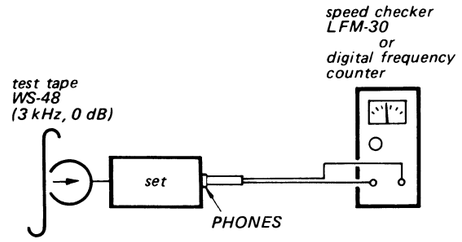
Tape Speed Adjustment

Setting:

VOLUME control: mechanical mid

Procedure:

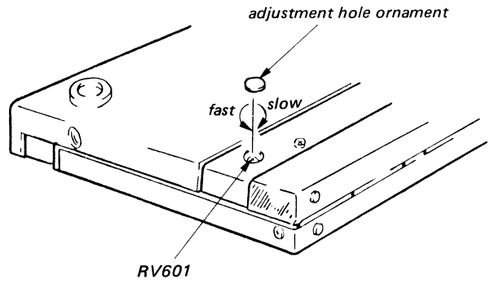
Mode: playback

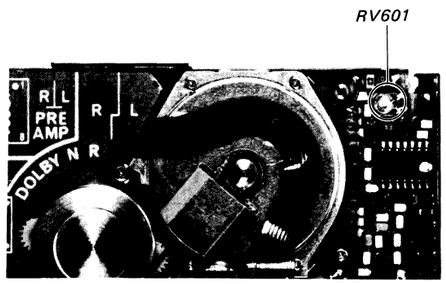


Specification:

Speed checker	Digital frequency counter
± 2%	2,940 – 3,060 Hz

Adjustment Location:

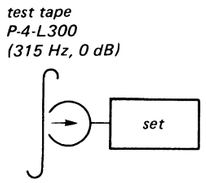




Dolby NR Level Adjustment

Setting:

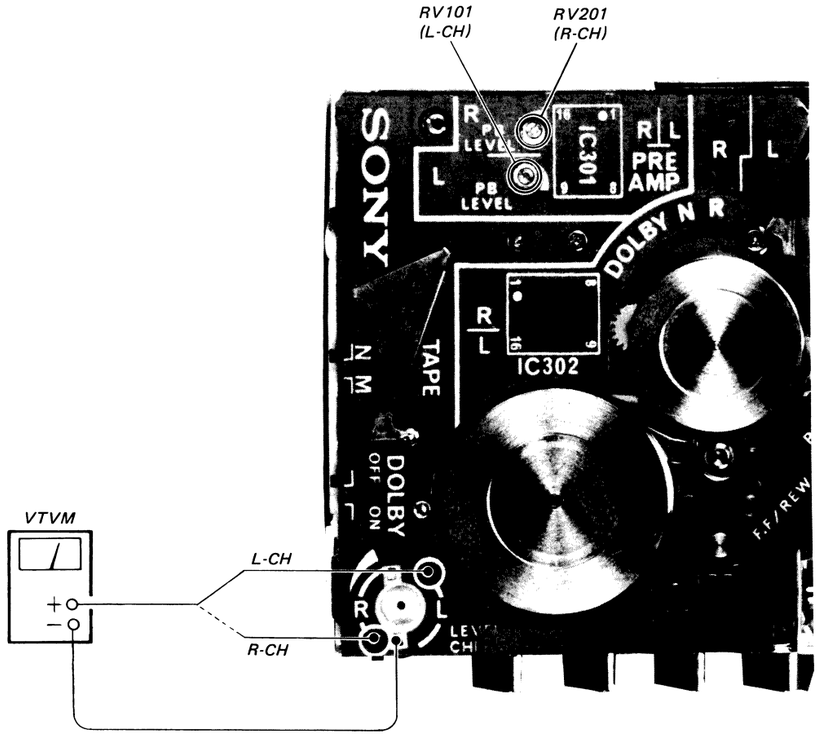
TAPE switch: NORM
DOLBY NR switch: off
VOLUME control: minimum



Procedure:

Adjust RV101 (L-CH), RV201 (R-CH) to obtain −27.7dB ± 1dB (0.028V to 0.036V) output level.

Adjustment Location: audio board

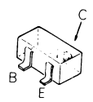


Note

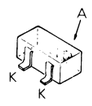
When the headphones are not connected, the unit will not operate.

Semiconductor Lead Layouts

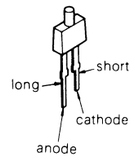
2SA1162
2SA1163
2SB624
2SC1623
DTA114TK
DTC114YK



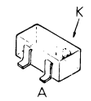
1S2835



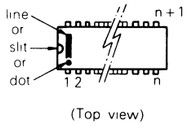
GL9PR22



DA106K



BA3304F
CX20085
CX20089
NJM2901MB



(Top view)

RD4.3M-B3

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/10W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ——: B+ bus.
- Readings are taken under no-signal conditions with an oscilloscope.

  no mark: { [AUDIO BOARD] & [SERVO BOARD (A)] : measured in playback mode without cassette.
  [SERVO BOARD (B)] & [CONVERTER BOARD] : measured play switch (S303-1) is turned on and the motor rotates with no load. (Mooer block is separated from the mechanism.)

  ( ): DOLBY NR (S302) ON
  ≪ ≫: FF/REW mode

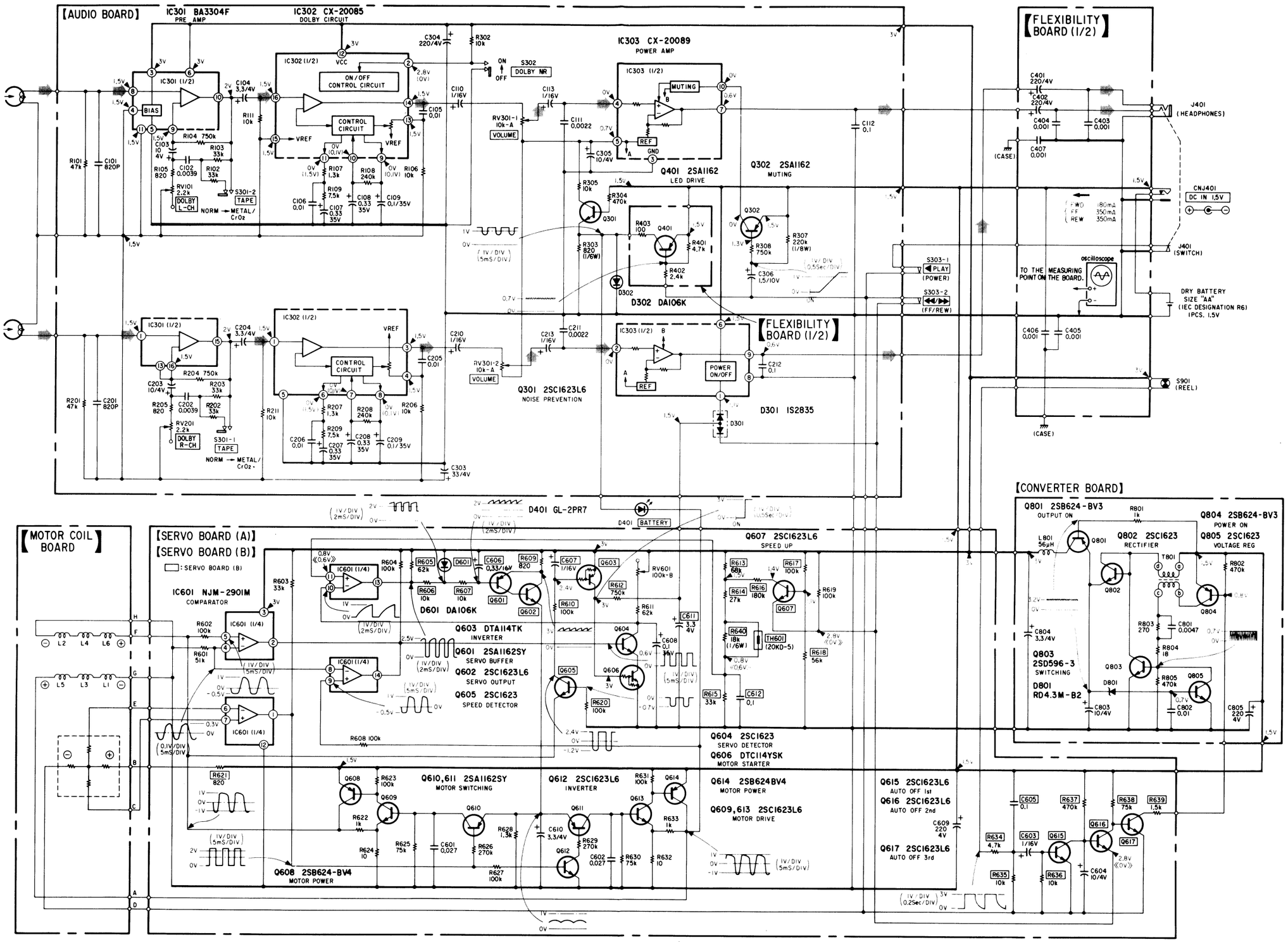
- Voltage variations may be noted due to normal production tolerances.

- Switch

Ref. No.	Switch	Position
S301	TAPE	NORM
S302	DOLBY NR	OFF
S303-1	◀PLAY	OFF
S303-2	◀◀/▶▶ (FF/REW)	OFF
S901	Reel	——
J401	Headphones (switch)	OFF

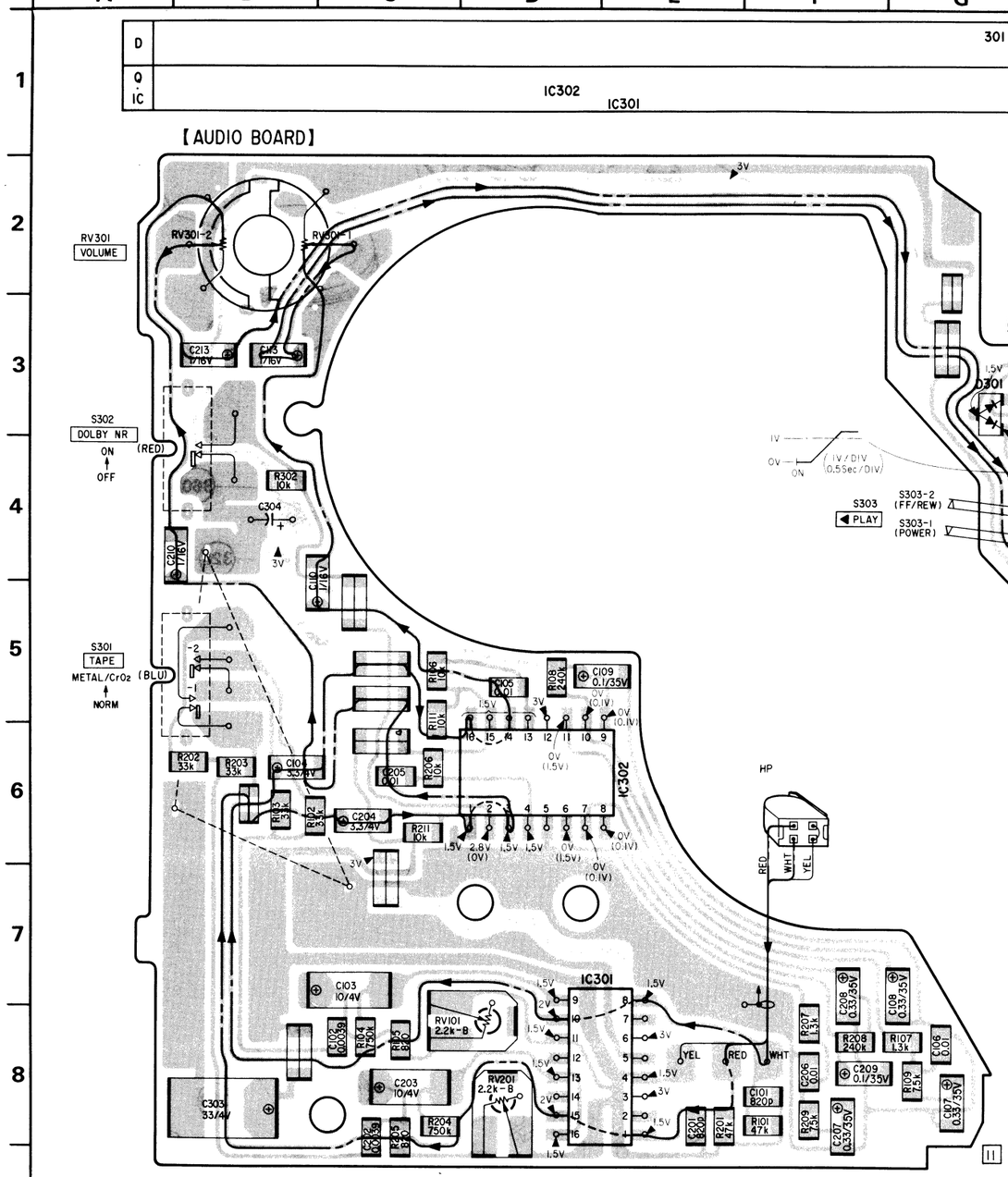
- ➡ : signal path.

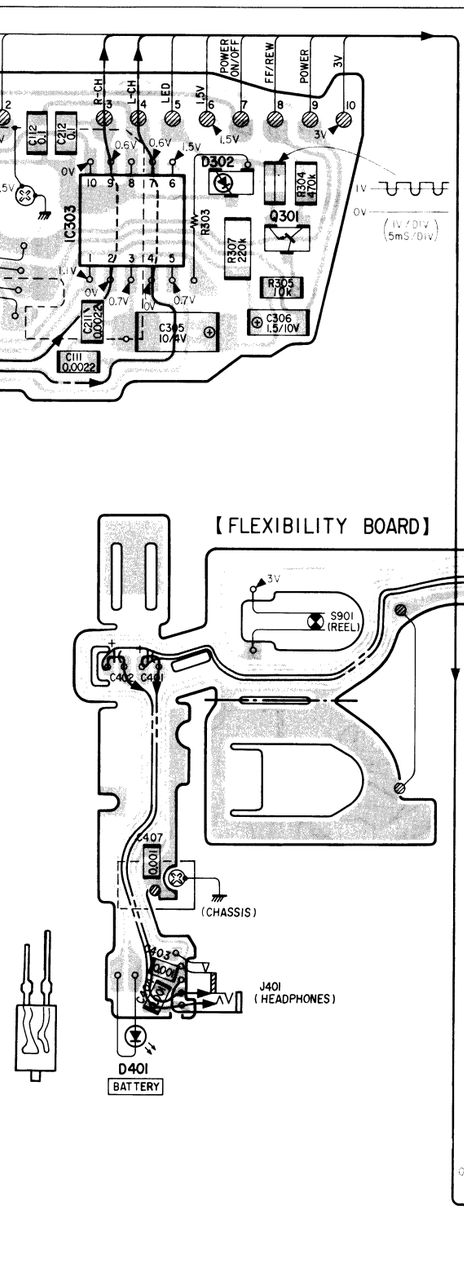
Note: Voltages are measured with an oscilloscope.

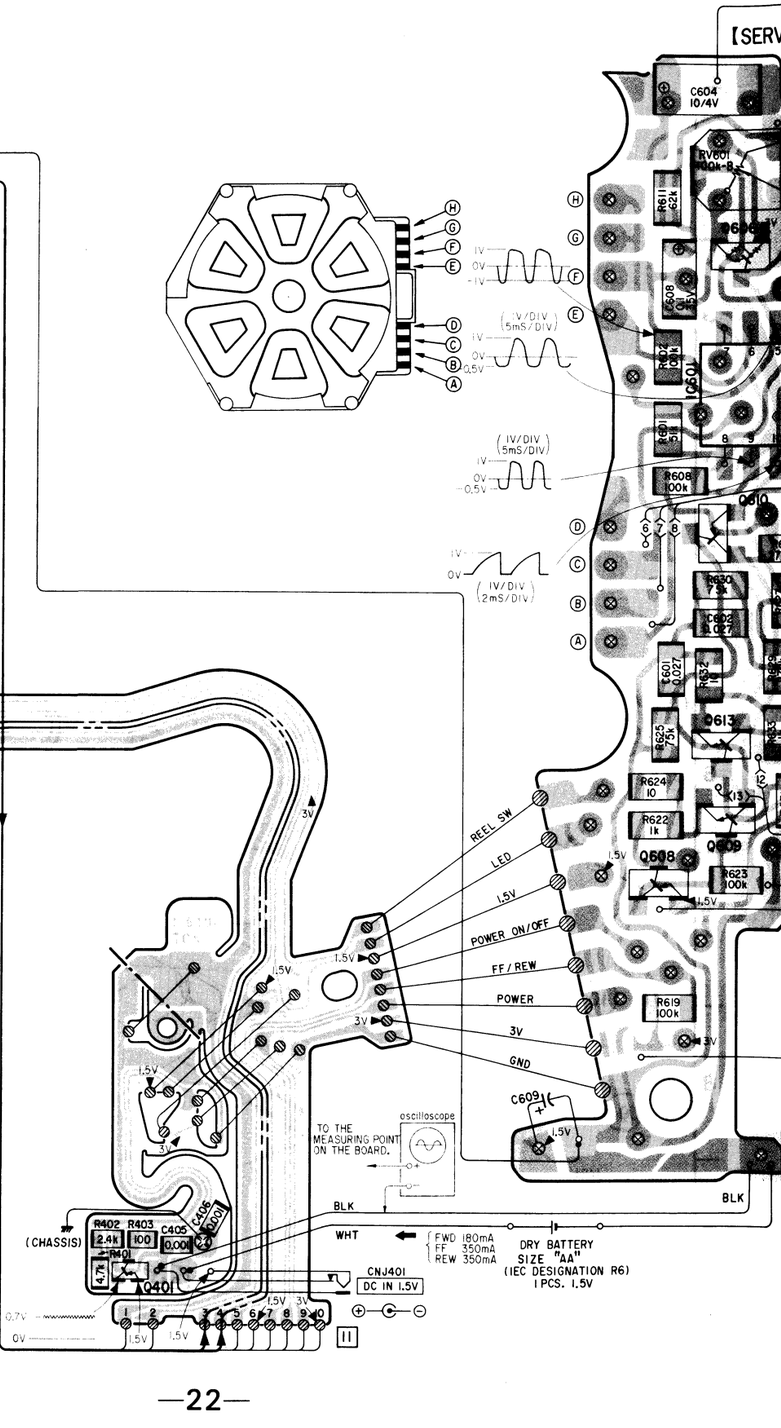

【AUDIO BOARD】
IC301 BA3304F
PRE AMP
IC302 CX-20085
DOLBY CIRCUIT
IC303 CX-20089
POWER AMP
ON/OFF CONTROL CIRCUIT
CONTROL CIRCUIT
MUTING
BIAS
VREF
REF
VOLUME
S302 DOLBY NR
S301-1 TAPE
S301-2 TAPE
DOLBY L-CH
DOLBY R-CH
NORM → METAL/CrO2
Q401 2SA1162
LED DRIVE
Q302 2SA1162
MUTING
Q301 2SC1623L6
NOISE PREVENTION
D302 DA106K
D301 IS2835
POWER ON/OFF
【FLEXIBILITY BOARD (1/2)】
【FLEXIBILITY BOARD (1/2)】
J401 (HEADPHONES)
J401 (SWITCH)
CNJ401 DC IN 1.5V
FWD 180mA
FF 350mA
REW 350mA
oscilloscope
TO THE MEASURING POINT ON THE BOARD.
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 1PCS. 1.5V
S901 (REEL)
S303-1 PLAY (POWER)
S303-2 (FF/REW)
(CASE)
(CASE)
D401 GL-2PR7
D401 BATTERY
【MOTOR COIL BOARD】
【SERVO BOARD (A)】
【SERVO BOARD (B)】
: SERVO BOARD (B)
IC601 NJM-2901M
COMPARATOR
D601 DA106K
Q603 DTA114TK
INVERTER
Q601 2SA1162SY
SERVO BUFFER
Q602 2SC1623L6
SERVO OUTPUT
Q605 2SC1623
SPEED DETECTOR
Q607 2SC1623L6
SPEED UP
Q604 2SC1623
SERVO DETECTOR
Q606 DTC114YSK
MOTOR STARTER
Q610,611 2SA1162SY
MOTOR SWITCHING
Q612 2SC1623L6
INVERTER
Q614 2SB624BV4
MOTOR POWER
Q609,613 2SC1623L6
MOTOR DRIVE
Q608 2SB624-BV4
MOTOR POWER
Q615 2SC1623L6
AUTO OFF 1st
Q616 2SC1623L6
AUTO OFF 2nd
Q617 2SC1623L6
AUTO OFF 3rd
【CONVERTER BOARD】
Q801 2SB624-BV3
OUTPUT ON
Q802 2SC1623
RECTIFIER
Q804 2SB624-BV3
POWER ON
Q805 2SC1623
VOLTAGE REG
Q803 2SD596-3
SWITCHING
D801 RD4.3M-B2

4-2. MOUNTING DIAGRAM

— Component Side —

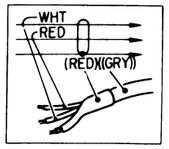






Note:

- Color code of sleeving over the end of the jacket.



- ○— : parts extracted from the component side.
- ⊗ : Through hole.
- : B + pattern
- ▬▬▶ : L-CH signal path
- ▬·▬▶ : R-CH signal path

G H I J K L M N O P Q R S T U V W

301 302 401 IC303 302 301 401 608 610 606 613 609 604 612 IC601 611 614 603 605 617 615 616 601 602 607 801 802 804 805 803 801

D

Q · IC

1 2 3 4 5 6 7 8 9 10

【SERVO (A) BOARD】

【SERVO (B) BOARD】

【CONVERTER BOARD】

【FLEXIBILITY BOARD】

S901 (REEL)

(CHASSIS)

J401 (HEADPHONES)

D401 BATTERY

TO THE MEASURING POINT ON THE BOARD.

oscilloscope

DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 1PCS. 1.5V

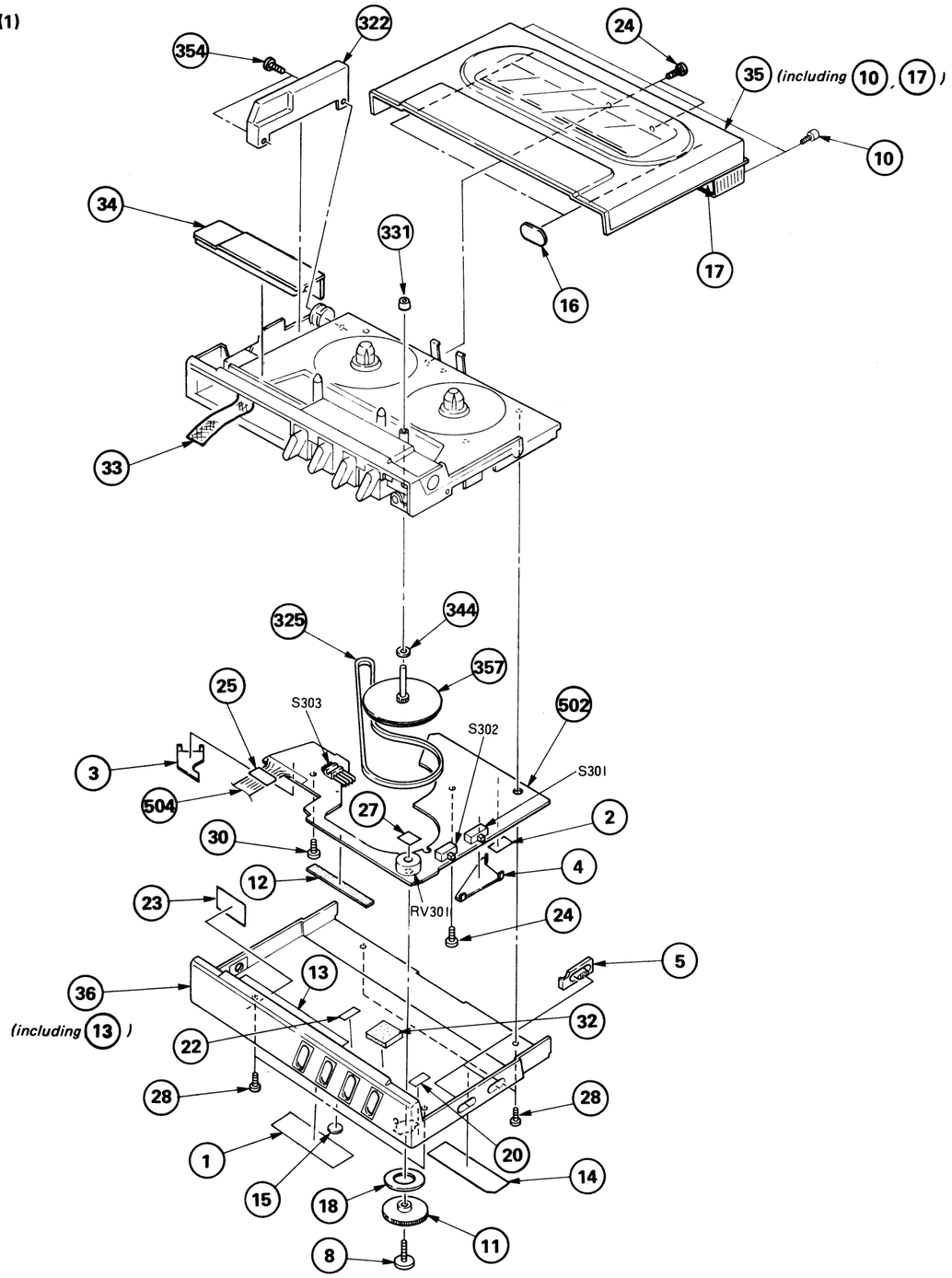
FWD 180mA FF 350mA REW 350mA

CNJ401 DC IN 1.5V

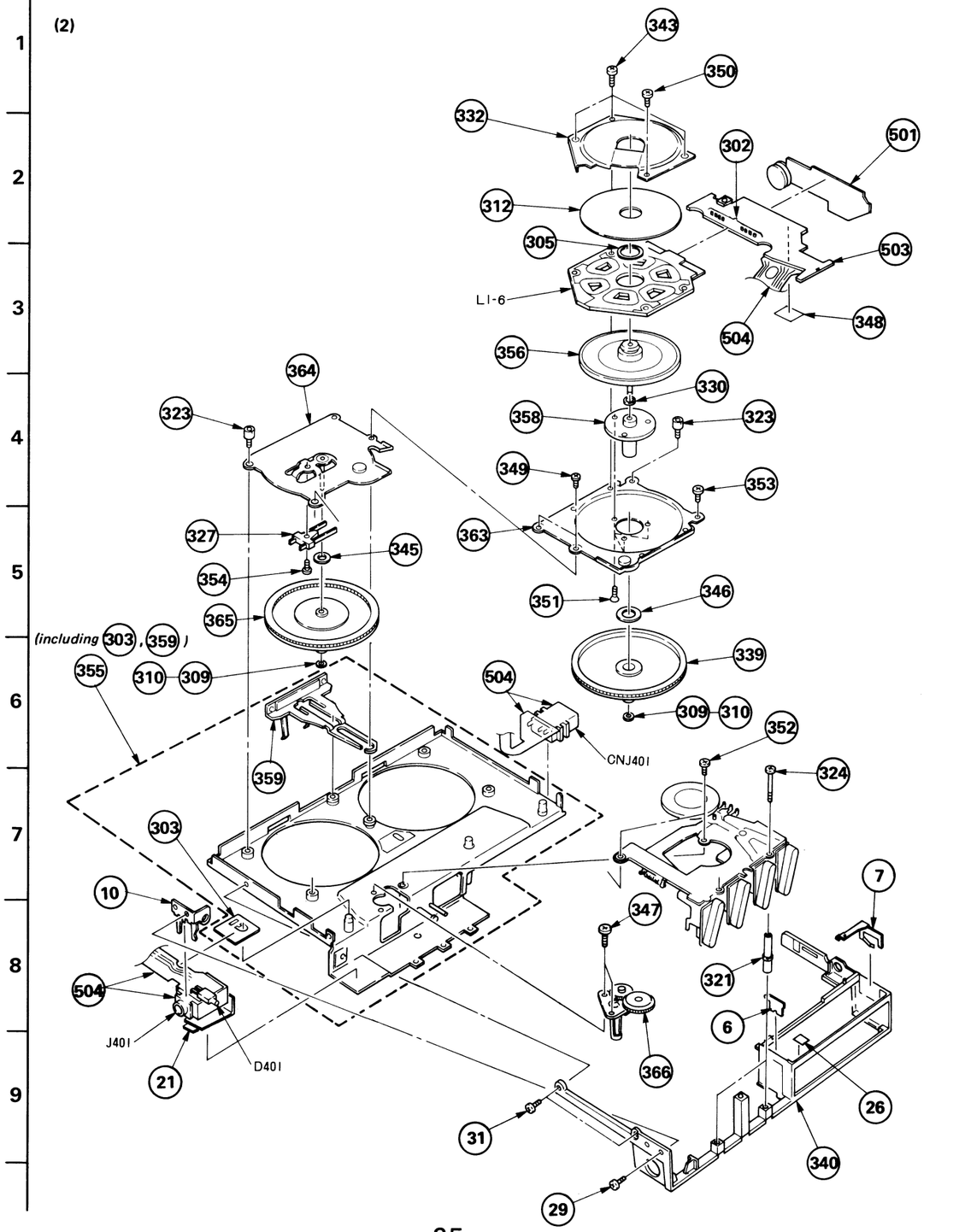
REEL SW, LED, 1.5V, POWER ON/OFF, FF/REW, POWER, 3V, GND, BLK, WHT

SECTION 5
EXPLODED VIEWS AND PARTS LIST

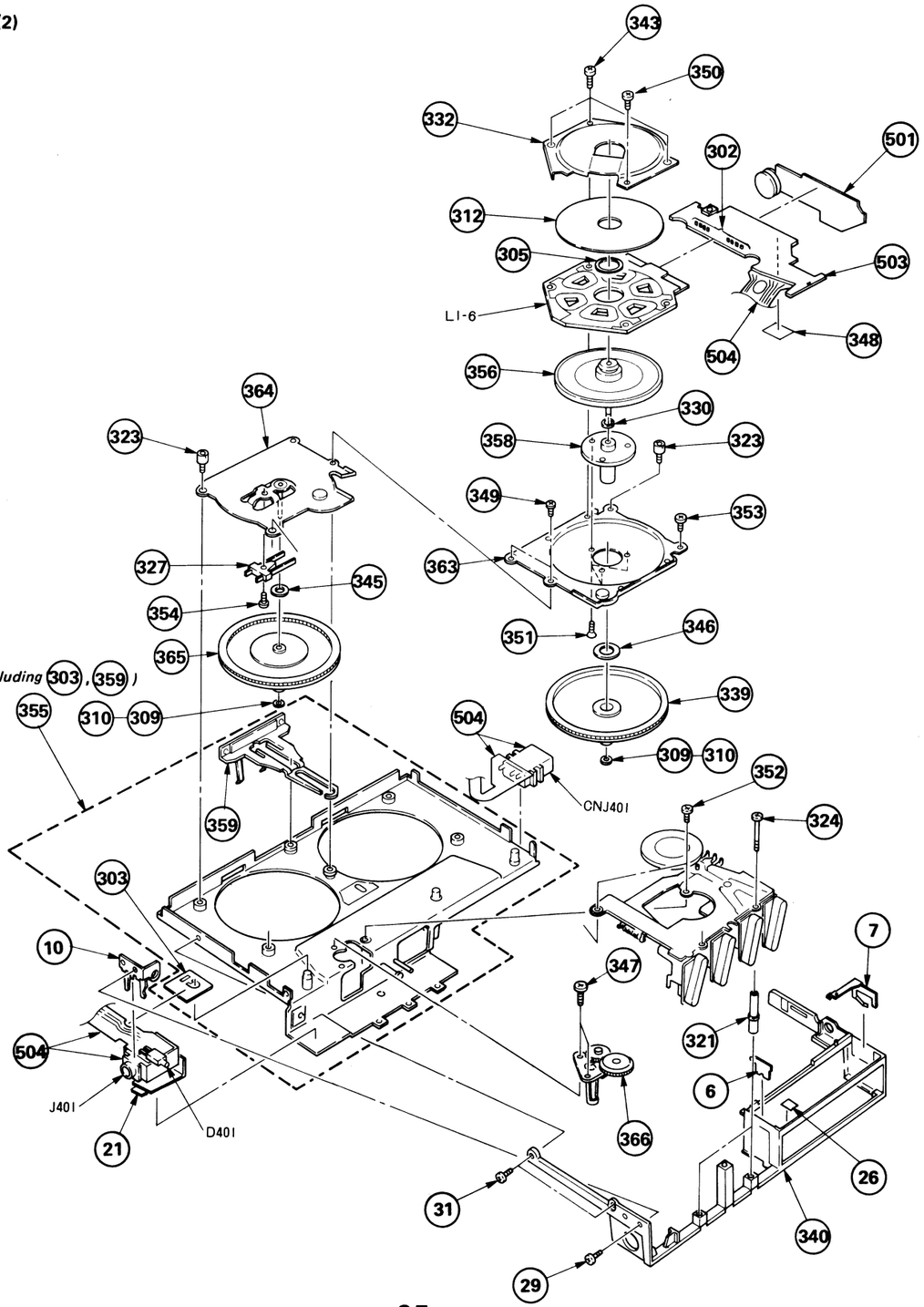
(1)



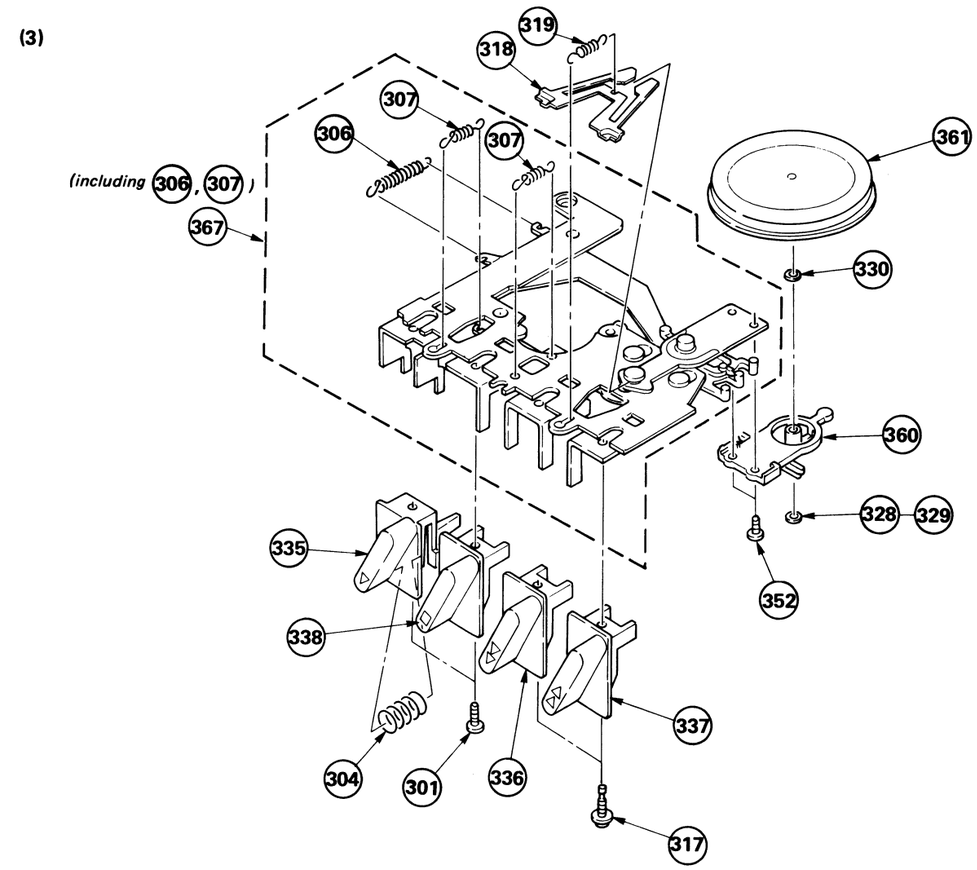
(2)

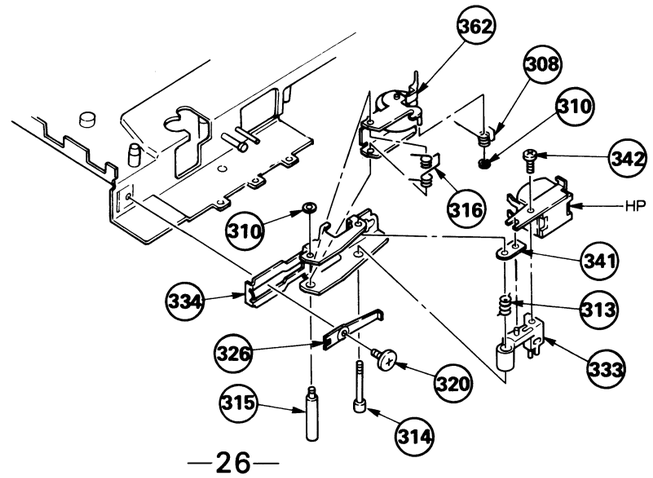


(2)


343
350
332
302
501
312
305
503
LI-6
504
348
356
364
330
323
358
323
349
353
327
345
363
354
351
346
365
339
(including 303 , 359)
355
310
309
504
309
310
352
CNJ401
359
324
303
7
10
347
321
504
6
J401
D401
21
366
26
31
340
29

(3)


319
318
307
306
307
361
(including 306 , 307)
367
330
360
328
329
335
352
338
337
304
301
336
317


362
308
310
342
316
HP
310
341
334
313
326
320
333
315
314

GENERAL SECTION

No.	Part No.	Description
1	3-305-947-00	LABEL, DOLBY
1	3-305-947-11	LABEL, DOLBY (FOR BLACK)
2	♦;3-312-754-00	SHEET (A), INSULATING
3	♦;3-315-302-00	TERMINAL BOARD (C), GROUND
4	♦;3-315-303-00	TERMINAL BOARD (B), GROUND
5	3-315-305-00	KNOB, SWITCH
6	3-315-306-00	TERMINAL (A), BATTERY
7	3-315-307-00	TERMINAL (B), BATTERY
8	3-315-308-00	SCREW, CONTROL
9	♦;3-315-310-00	RETAINER, JACK
10	3-315-318-00	SCREW, ORNAMENTAL
11	3-315-322-00	KNOB, CONTROL
12	♦;3-315-441-00	SHEET (A)
13	3-315-442-00	LABEL, POLARITY
14	3-315-455-01	LABEL, MODEL NUMBER (FOR BLACK)
14	3-315-455-11	LABEL, MODEL NUMBER
15	3-315-457-01	ORNAMENT, ADJUSTMENT HOLE
15	3-315-457-11	ORNAMENT, ADJUSTMENT HOLE (FOR BLACK)
16	3-315-465-00	CUSHION, CASSETTE
17	3-315-466-00	SHEET, PANEL
18	3-315-467-00	WASHER, CONTROL
19	.....	
20	3-553-566-00	CUSHION
21	3-560-308-00	SHEET (B), INSULATING
22	3-570-611-00	SHEET, PROTECTION, LID
23	3-701-999-00	LABEL, SERIAL NUMBER
24	3-703-816-01	SCREW (M1.4)
24	3-703-816-02	SCREW (M1.4)(FOR BLACK)
25	3-831-441-XX	SPACER
26	3-831-441-XX	SPACER, 3X10
27	3-831-441-XX	CUSHION
28	7-627-551-17	SCREW, PRECISION +P 1.4X2
28	7-627-551-18	SCREW, PRECISION +P 1.4X2 (FOR BLACK)
29	7-627-551-47	SCREW, PRECISION +P 1.4X1.4
30	7-627-850-07	SCREW, PRECISION +P 1.4X2
31	7-627-850-37	SCREW, PRECISION +P 1.4X1.4
32	9-911-815-01	CUSHION
33	9-911-816-01	CLOTH, BATTERY DRAWING
34	X-3315-301-0	LID ASSY, BATTERY CASE
35	X-3315-302-0	PANEL ASSY, CASSETTE (FOR SILVER)
35	X-3315-319-0	PANEL ASSY, CASSETTE (FOR BLACK)
35	X-3315-320-0	PANEL ASSY, CASSETTE (FOR BLUE)
35	X-3315-321-0	PANEL ASSY, CASSETTE (FOR RED)
35	X-3315-323-0	PANEL ASSY, CASSETTE (FOR GOLD)
36	X-3315-339-1	PANEL ASSY, CONTROL (FOR GOLD)
36	X-3315-326-1	PANEL ASSY, CONTROL (FOR SILVER)
36	X-3315-327-1	PANEL ASSY, CONTROL (FOR BLACK)
36	X-3315-328-1	PANEL ASSY, CONTROL (FOR BLUE)
36	X-3315-329-1	PANEL ASSY, CONTROL (FOR RED)

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
51	1-528-027-00	BATTERY, NEW SUPER (SUM-3)
52	3-315-444-00	CUSHION
53	3-315-446-00	INDIVIDUAL CARTON
54	3-315-450-00	BELT, CARRYING
55	3-315-949-01	COVER, WINDOW
56	3-701-308-00	LABEL, PRODUCT COLOR (FOR BLACK)
56	3-701-311-00	LABEL, PRODUCT COLOR (FOR RED)
56	3-701-314-00	LABEL, PRODUCT COLOR (FOR BLUE)
56	3-703-729-00	LABEL (SMALL), COLOR (FOR SILVER)
56	3-703-730-00	LABEL (SMALL), COLOR (FOR GOLD)
57	3-701-621-00	BAG, POLYETHYLENE (FOR CARRYING CASE)
58	.....	
59	3-703-710-01	STICKER, SONY SYMBOL (12)
60	3-773-511-11	(AEP,UK)...MANUAL, INSTRUCTION
60	3-773-511-41	(E).....MANUAL, INSTRUCTION
61	3-795-723-01	CARD, ILLUSTRATION
62	3-795-751-01	INSTRUCTION
63	8-951-187-90	HEADPHONE (MDR-W30L)
64	X-3315-336-0	CASE ASSY, CARRYING
65	X-3315-337-0	SLEEVE & STOPPER ASSY

MECHANISM SECTION

No.	Part No.	Description
301	3-305-528-11	SCREW, STOPPER
302	3-315-301-00	TERMINAL BOARD, MOTOR
303	3-315-304-00	TERMINAL BOARD (A), GROUND
304	3-315-331-00	SPRING, COMPRESSION
305	3-315-332-01	SPACER (t=0.05)
305	3-315-332-11	SPACER (t=0.1)
306	3-315-341-00	SPRING, TENSION
307	3-315-343-00	SPRING, TENSION
308	3-315-357-00	SPRING
309	3-315-384-01	WASHER, STOPPER (t=0.13)
310	3-315-384-11	WASHER, STOPPER (t=0.25)
311	.....	
312	3-315-390-00	PLATE, HYSTERESIS
313	3-315-391-00	SPRING
314	3-315-392-00	SCREW, ADJUSTMENT
315	3-315-393-00	SHAFT, PINCH LEVER
316	3-315-394-00	SPRING
317	3-315-395-00	SCREW, BUTTON
318	3-315-396-00	LEVER (C), F.R
319	3-315-397-00	SPRING, TENSION
320	3-315-398-00	SCREW, LOCK
321	3-315-399-00	COLLAR, BUTTON

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

MECHANISM SECTION

No.	Part No.	Description
322	3-315-402-00	COVER, CONVERTER
323	3-315-403-00	SHAFT (C), STOPPER, CABINET
324	3-315-404-00	SCREW
325	3-315-405-00	BELT
326	3-315-406-00	SPRING
327	3-315-412-00	CONTACT, OUTSERT
328	3-315-414-00	WASHER (t=0.25)
329	3-315-414-11	WASHER (t=0.188)
330	3-315-415-00	WASHER (t=0.075)
331	3-315-417-00	BUSHING, CAPSTAN
332	♦;3-315-419-00	PLATE, SHIELD
333	3-315-430-00	TABLE, HEAD
334	3-315-431-00	CHASSIS, HEAD
335	3-315-432-00	BUTTON, PLAY
336	3-315-433-00	BUTTON, FF
337	3-315-434-00	BUTTON, REW
338	3-315-435-00	BUTTON, STOP
339	3-315-436-00	GEAR (OUTSERT), SUPPLY REEL
340	3-315-437-00	ORNAMENT, REEL
341	3-315-463-00	PLATE, GROUND, HEAD
342	3-315-484-02	SCREW (M2X3), HEAD, WASHER
343	3-315-485-01	SCRWE (M1.4X2.3), PRECISION
344	3-315-495-31	WASHER, 2(t=0.3)
345	3-701-438-01	WASHER (t=0.13)
345	3-701-438-11	WASHER, 2.5 (t=0.25)
346	3-317-702-01	WASHER, 5 (t=0.2)
347	3-703-502-01	SCREW
348	3-831-441-XX	CUSHION, CABINET UPPER 10X7X0.3
349	.....	
350	7-627-451-87	SCREW, PRECISION +K 1.4X2.2
351	7-627-455-07	SCREW, PRECISION +K 1.4X1.4
352	7-627-551-47	SCREW, PRECISION +P 1.4X1.4
353	7-627-850-07	SCREW, PRECISION +P 1.4X2
354	7-627-850-37	SCREW, PRECISION +P 1.4X1.4
355	A-3125-003-A	CHASSIS BLOCK ASSY, REEL
356	A-3133-182-A	WHEEL BLOCK ASSY, MOTOR
357	X-3315-303-0	FLYWHEEL ASSY
358	X-3315-305-0	SLEEVE ASSY, MOTOR
359	X-3315-306-0	BRACKET ASSY, REAR PANEL
360	X-3315-307-0	LEVER (B) ASSY, FR
361	X-3315-308-0	WHEEL ASSY, REVERSE
362	X-3315-311-0	PINCH LEVER ASSY
363	X-3315-312-0	CHASSIS ASSY, MOTOR
364	X-3315-314-0	CHASSIS ASSY, TAKE-UP REEL
365	X-3315-315-0	GEAR ASSY, TAKE-UP REEL
366	X-3315-316-0	SLEEVE (COMP) ASSY
367	X-3315-317-0	PLATE ASSY, CONTROL

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
501	♦;1-610-702-00	PC BOARD, CONVERTER		
502	♦;A-3015-198-A	MOUNTED PCB, AUDIO		
503	A-3065-035-A	SERVO UNIT		
504	A-3089-055-A	PC BOARD ASSY, FLEXIBLE		
C101	1-163-008-00	CERAMIC CHIP 820PF	10%	50V
C102	1-163-016-00	CERAMIC CHIP 0.0039MF	10%	50V
C103	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C104	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C105	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C106	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C107	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C108	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C109	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C110	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C111	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C112	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C113	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C201	1-163-008-00	CERAMIC CHIP 820PF	10%	50V
C202	1-163-016-00	CERAMIC CHIP 0.0039MF	10%	50V
C203	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C204	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C205	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C206	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C207	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C208	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C209	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C210	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C211	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C212	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C213	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C303	1-135-105-00	TANTAL. CHIP 33MF	20%	4V
C304	1-124-413-00	ELECT 220MF	20%	4V
C305	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C306	1-135-095-00	TANTAL. CHIP 1.5MF	20%	10V
C401	1-124-413-00	ELECT 220MF	20%	4V
C402	1-124-413-00	ELECT 220MF	20%	4V
C403	1-163-009-00	CERAMIC CHIP 0.001MF	10%	50V
C404	1-163-009-00	CERAMIC CHIP 0.001MF	10%	50V
C405	1-163-009-00	CERAMIC CHIP 0.001MF	10%	50V
C406	1-163-009-00	CERAMIC CHIP 0.001MF	10%	50V
C407	1-163-009-00	CERAMIC CHIP 0.001MF	10%	50V
C601	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C602	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C603	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C604	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C605	1-163-038-00	CERAMIC CHIP 0.1MF		25V

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In each case, U : μ, for example:
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UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C606	1-135-073-00	TANTAL. CHIP	0.33MF	10%	35V
C607	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C608	1-135-070-00	TANTAL. CHIP	0.1MF	10%	35V
C609	1-124-413-00	ELECT	220MF	20%	4V
C610	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V
C611	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V
C612	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C801	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C802	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C803	1-135-104-00	TANTAL. CHIP	10MF	20%	4V
C804	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V
C805	1-124-413-00	ELECT	220MF	20%	4V
CNJ401	1-507-894-00	JACK, EXTERNAL POWER			
D301	8-719-100-03	DIODE 1S2835			
D302	8-719-908-30	DIODE DA106K			
D401	8-719-908-40	DIODE GL-2PR7			
D601	8-719-908-30	DIODE DA106K			
D801	8-719-105-65	DIODE RD4.3M-B3			
HP	8-825-507-10	HEAD (PP227-3602H)			
IC301	8-759-910-18	IC BA3304F			
IC302	8-759-908-08	IC CX20085			
IC303	8-759-600-67	IC CX20089			
IC601	8-759-700-75	IC NJM2901MB			
J401	1-507-895-00	JACK, HEADPHONE (WITH SW)			
JR301	1-216-295-00	METAL CHIP	0	5%	1/10W
JR302	1-216-295-00	METAL CHIP	0	5%	1/10W
JR303	1-216-296-00	METAL CHIP	0	5%	1/8W
JR304	1-216-296-00	METAL CHIP	0	5%	1/8W
JR305	1-216-296-00	METAL CHIP	0	5%	1/8W
JR306	1-216-296-00	METAL CHIP	0	5%	1/8W
JR307	1-216-296-00	METAL CHIP	0	5%	1/8W
JR308	1-216-296-00	METAL CHIP	0	5%	1/8W
JR309	1-216-296-00	METAL CHIP	0	5%	1/8W
JR310	1-216-295-00	METAL CHIP	0	5%	1/10W
JR801	1-216-295-00	METAL CHIP	0	5%	1/10W
L1-6	1-462-209-00	COIL, MOTOR (STATOR)			
L801	1-408-946-00	INDUCTOR CHIP	56UH		
Q301	8-729-100-66	TRANSISTOR 2SC1623			
Q302	8-729-216-22	TRANSISTOR 2SA1162			
Q401	8-729-216-22	TRANSISTOR 2SA1162			
Q601	8-729-216-22	TRANSISTOR 2SA1162			
Q602	8-729-100-66	TRANSISTOR 2SC1623			
Q603	8-729-900-51	TRANSISTOR DTA114TK			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q604	8-729-100-66	TRANSISTOR 2SC1623			
Q605	8-729-100-66	TRANSISTOR 2SC1623			
Q606	8-729-900-52	TRANSISTOR DTC114YK			
Q607	8-729-100-66	TRANSISTOR 2SC1623			
Q608	8-729-102-44	TRANSISTOR 2SB624			
Q609	8-729-100-66	TRANSISTOR 2SC1623			
Q610	8-729-216-22	TRANSISTOR 2SA1162			
Q611	8-729-216-22	TRANSISTOR 2SA1162			
Q612	8-729-100-66	TRANSISTOR 2SC1623			
Q613	8-729-102-62	TRANSISTOR 2SC1623			
Q614	8-729-102-44	TRANSISTOR 2SB624			
Q615	8-729-100-66	TRANSISTOR 2SC1623			
Q616	8-729-100-66	TRANSISTOR 2SC1623			
Q617	8-729-100-66	TRANSISTOR 2SC1623			
Q801	8-729-102-44	TRANSISTOR 2SB624			
Q802	8-729-100-66	TRANSISTOR 2SC1623			
Q803	8-729-159-64	TRANSISTOR 2SD596			
Q804	8-729-102-44	TRANSISTOR 2SB624			
Q805	8-729-100-66	TRANSISTOR 2SC1623			
R101	1-216-089-00	METAL CHIP	47K	5%	1/10W
R102	1-216-085-00	METAL CHIP	33K	5%	1/10W
R103	1-216-085-00	METAL CHIP	33K	5%	1/10W
R104	1-216-118-00	METAL CHIP	750K	5%	1/10W
R105	1-216-047-00	METAL CHIP	820	5%	1/10W
R106	1-216-073-00	METAL CHIP	10K	5%	1/10W
R107	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R108	1-216-106-00	METAL CHIP	240K	5%	1/10W
R109	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R201	1-216-089-00	METAL CHIP	47K	5%	1/10W
R202	1-216-085-00	METAL CHIP	33K	5%	1/10W
R203	1-216-085-00	METAL CHIP	33K	5%	1/10W
R204	1-216-118-00	METAL CHIP	750K	5%	1/10W
R205	1-216-047-00	METAL CHIP	820	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R208	1-216-106-00	METAL CHIP	240K	5%	1/10W
R209	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R211	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-073-00	METAL CHIP	10K	5%	1/10W
R303	1-216-047-00	METAL CHIP	820	5%	1/10W
R304	1-216-113-00	METAL CHIP	470K	5%	1/10W
R305	1-216-073-00	METAL CHIP	10K	5%	1/10W
R307	1-216-254-00	METAL CHIP	220K	5%	1/8W
R308	1-216-118-00	METAL CHIP	750K	5%	1/10W
R401	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R402	1-216-058-00	METAL CHIP	2.4K	5%	1/10W
R403	1-216-025-00	METAL CHIP	100	5%	1/10W
R601	1-216-090-00	METAL CHIP	51K	5%	1/10W
R602	1-216-097-00	METAL CHIP	100K	5%	1/10W
R603	1-216-085-00	METAL CHIP	33K	5%	1/10W
R604	1-216-097-00	METAL CHIP	100K	5%	1/10W
R605	1-216-092-00	METAL CHIP	62K	5%	1/10W
R606	1-216-073-00	METAL CHIP	10K	5%	1/10W
R607	1-216-073-00	METAL CHIP	10K	5%	1/10W
R608	1-216-097-00	METAL CHIP	100K	5%	1/10W
R609	1-216-047-00	METAL CHIP	820	5%	1/10W
R610	1-216-097-00	METAL CHIP	100K	5%	1/10W
R611	1-216-092-00	METAL CHIP	62K	5%	1/10W
R612	1-216-118-00	METAL CHIP	750K	5%	1/10W
R613	1-216-093-00	METAL CHIP	68K	5%	1/10W
R614	1-216-083-00	METAL CHIP	27K	5%	1/10W
R615	1-216-085-00	METAL CHIP	33K	5%	1/10W
R616	1-216-103-00	METAL CHIP	180K	5%	1/10W
R617	1-216-097-00	METAL CHIP	100K	5%	1/10W
R618	1-216-091-00	METAL CHIP	56K	5%	1/10W
R619	1-216-097-00	METAL CHIP	100K	5%	1/10W
R620	1-216-097-00	METAL CHIP	100K	5%	1/10W
R621	1-216-047-00	METAL CHIP	820	5%	1/10W
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W
R623	1-216-097-00	METAL CHIP	100K	5%	1/10W
R624	1-216-001-00	METAL CHIP	10	5%	1/10W
R625	1-216-094-00	METAL CHIP	75K	5%	1/10W
R626	1-216-107-00	METAL CHIP	270K	5%	1/10W
R627	1-216-097-00	METAL CHIP	100K	5%	1/10W
R628	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R629	1-216-107-00	METAL CHIP	270K	5%	1/10W
R630	1-216-094-00	METAL CHIP	75K	5%	1/10W
R631	1-216-097-00	METAL CHIP	100K	5%	1/10W
R632	1-216-001-00	METAL CHIP	10	5%	1/10W
R633	1-216-049-00	METAL CHIP	1K	5%	1/10W
R634	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R635	1-216-073-00	METAL CHIP	10K	5%	1/10W
R636	1-216-073-00	METAL CHIP	10K	5%	1/10W
R637	1-216-113-00	METAL CHIP	470K	5%	1/10W
R638	1-216-094-00	METAL CHIP	75K	5%	1/10W
R639	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R640	1-216-079-00	RES, CHIP	18K		
R801	1-216-049-00	METAL CHIP	1K	5%	1/10W
R802	1-216-113-00	METAL CHIP	470K	5%	1/10W
R803	1-216-035-00	METAL CHIP	270	5%	1/10W

ELECTRICAL PARTS

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R804	1-216-007-00	METAL CHIP	18	5%	1/10W
R805	1-216-113-00	METAL CHIP	470K	5%	1/10W
RV101	1-230-181-00	RES, ADJ, METAL GLAZE 2.2K			
RV201	1-230-181-00	RES, ADJ, METAL GLAZE 2.2K			
RV301	1-230-180-00	RES, VAR, CARBON 10K/10K (VOLUME)			
RV601	1-230-182-00	RES, ADJ, METAL GLAZE 100K			
S301	1-554-585-00	SWITCH, SLIDE (M-N)			
S302	1-554-584-00	SWITCH, SLIDE (DOLBY)			
S303	1-554-586-00	SWITCH, LEAF			
T801	1-447-666-00	TRANSFORMER, DC-DC CONVERTER			
TH601	1-806-715-11	THERMISTOR			

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